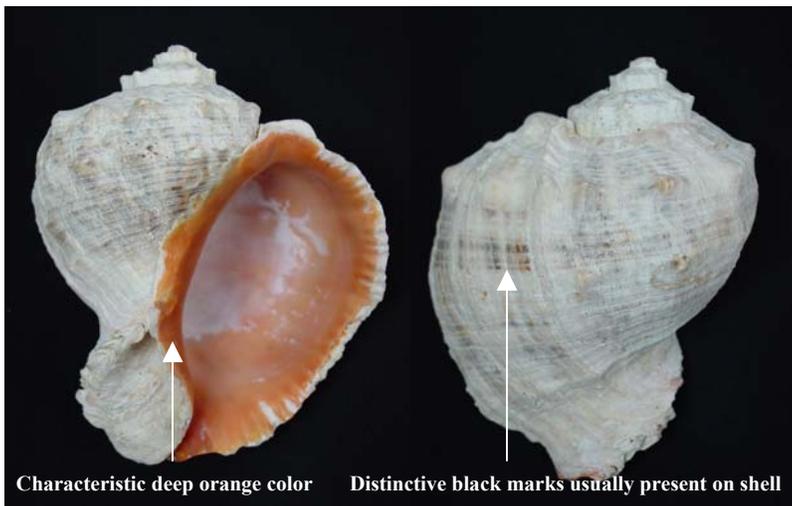


NONINDIGENOUS SPECIES INFORMATION BULLETIN: Veined Rapa Whelk, Asian Rapa Whelk, *Rapana venosa* (Valenciennes, 1846) Mollusca: Gastropoda, Muricidae

IDENTIFICATION: The shell is globose (rounded), with a very short-spire and large body whorl. The epidermal color varies from gray to reddish-brown, with dark brown dashes on the spiral ribs. Most specimens have distinctive black veins throughout the shell. A diagnostic feature for this species is the deep orange color found in the aperture and on the columella. Rapa whelks can reach 180 mm (about 7 in).

NATIVE RANGE: Marine and estuarine waters of the western Pacific, from the Sea of Japan, Yellow Sea, East China Sea and the Bohai Sea.



Characteristic deep orange color Distinctive black marks usually present on shell
Veined Rapa Whelk, *Rapana venosa* (Actual size of specimen is ~6 in/152 mm)
(Specimen courtesy of Julia Harding, VIMS)

LIFE HISTORY: Veined rapa whelks are carnivorous gastropods whose main diet consists of a variety of other mollusk such as native oysters. Most marine predatory snails feed by drilling a hole into their prey, but rapa whelks smother their prey by wrapping around the hinged region of the shell and feeding between the opened valve. It reproduces by laying clusters of egg capsules that resemble small mats of yellow shag carpet, which produce pelagic larvae that eventually settle on the bottom where they develop into hard-shelled snails. Growth is rapid over the first year of life, reproduction occurs from the second year onwards and large specimens may be over ten years old.

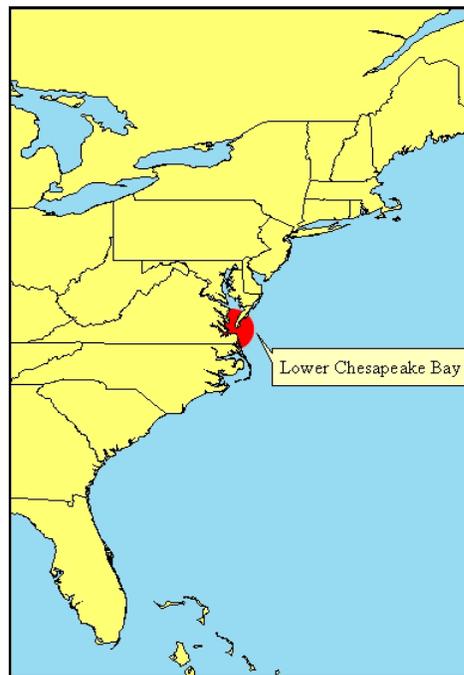
HABITAT: This species favors compact sandy bottoms where it can burrow deep into the substrate. The native habitat is a region of wide annual temperature ranges, comparable to the Chesapeake Bay. It may migrate to warmer, deeper waters in winter thereby evading cool surface waters. This prolific species is extremely versatile, tolerating low salinities, water pollution and oxygen deficient waters.

NONINDIGENOUS OCCURRENCES: *Rapana venosa* has been introduced into the Black Sea in the 1940s and within a decade spread along the Caucasian and Crimean coasts and to the Sea of Azov. Its range extended into the northwest Black Sea to the coastlines of Romania, Bulgaria and Turkey from 1959 to 1972. This species has been introduced and become established in the northern Adriatic and Aegean seas and is present at a location along the southeast coast of South America. The first specimen in the United States was collected by members of the Virginia Institute of Marine Science Trawl Survey Group in August 1998 in Hampton Roads, VA. Adult specimens as well as egg cases continue to be reported from locations in lower Chesapeake Bay.

MEANS OF INTRODUCTION: Possible pathways of introduction in the Chesapeake Bay area include planktonic larvae in ballast water tanks of ships or egg masses that may have been transported with products of marine farming.

IMPACTS: Veined rapa whelks have caused significant changes in the ecology of bottom-dwelling organisms, and have become marine pests in the Black Sea. Although scientists are still studying the impacts of the whelk, they are very concerned about its potential damage to native Bay species. Studies are currently under way to help determine the whelk's spread in the Chesapeake Bay, so that scientists can develop a model that will help define potential impacts to the Bay's ecosystem.

CONTROL AND MANAGEMENT: There are no known cases of successful eradication of nonindigenous marine invertebrates in the United States. Studies are under way at the Virginia Institute of Marine Science (VIMS) to help determine the whelk's spread and its potential environmental range. VIMS researchers are interested in any sightings of this species in Virginia and Maryland waters. The institute is also paying watermen a bounty for live and dead whelks, to determine the rate and directions of spread. Current studies are investigating the extraordinary reproductive habits of the whelks. In Hampton Roads, watermen and researchers have discovered the whelks laying millions of egg cases. Potential for damage to native shellfish populations is considerable. The more scientists are learning about this species the more concerned they become about the region's seafood industry.



Red area denotes general vicinity of established population in the US.

If you have collected or observed this species, or know of someone who has, please call the **Nonindigenous Aquatic Species Toll-Free Hotline, 1-877-STOP-ANS** and report the information. Or, report it using our website, <http://nas.er.usgs.gov/>.